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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,750	09/03/2003	Gerald D. Zuraski JR.	5500-90500	3667

7590

09/12/2005

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EXAMINER

KNAPP, JUSTIN R

ART UNIT	PAPER NUMBER
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2182

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/653,750	Applicant(s) ZURASKI ET AL.	
	Examiner Justin Knapp	Art Unit 2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/11/05, 1/7/05</u> . | 6) <input checked="" type="checkbox"/> Other: <u>IDS: 1/12/04, 1/7/04</u> . |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 11, 12, and 20-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Frederick Jr et al (Frederick), USPN 6,178,497.

3. As per claims 1, 11, and 20, Frederick teaches receiving data to be written to at least a first entry of a plurality of entries in a buffer (figure 2, queue 201 receives a plurality of entries); generating a first age vector of a plurality of age vectors responsive to receiving the data, each of the plurality of age vectors corresponding to one or more of the plurality of entries, the first age vector corresponding to at least the first entry, and wherein the first age vector is indicative of which of the plurality of entries contain data that is older than the data being written to at least the first entry (an age function, to determine age vector, A_i , is generated to determine the age of entries relative to one another, column 4, line 39 through column 5, line 65) ; and selecting a selected entry of the plurality of entries for reading responsive to the plurality of age vectors, the selected entry being the entry of the plurality of entries that: (i) has an attribute used to select the selected entry, and (ii) other entries indicated as storing older data in the age vector corresponding to the selected entry do not have the attribute (valid vector, V_o , is any arbitrary function to which the age function is to used to determine if an entry is valid or not in response to the received input, column 5, lines 1-15) .

4. As per claims 2 and 12, the limitations are identical to those found in claims 1 and 11 are thus rejected accordingly.

5. As per claims 21-23, Frederick teaches a circular buffer queue implemented in a scheduler, the operations to be executed by one or more execution cores; at least one circular buffer implemented in a retire queue; at least one circular buffer implemented as a load/store buffer storing load/store operations (column 2, line 41 through column 4, line 21 and corresponding figure 1).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-10 and 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frederick in view of Roy, USPN 6,785,802.

8. As per claims 3, 6-10, and 15-19, Frederick does not explicitly teach wherein the age vectors comprise a plurality of indications. Roy teaches a method of tracking instruction priority in an out of order instruction shelf of a microprocessor, including storing respective instructions in a plurality of slots of an instruction pool, and storing, an instruction age tracker, a matrix of rows and columns of logic states associated with relative ages of instructions. The logic states in a given column and row are associated with a respective slots of the instruction pool. The method includes performing a logic function on each column of the matrix to determine the

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relative ages of the instructions stored in respective slots of the instruction pool (column 3, lines 29-42). It would have been obvious to one of ordinary skill in the art to utilize the teachings of Roy as indications for the plurality of entries taught by Frederick and the corresponding age vectors for each entry. Doing so would provide a well organized way of tracking what instructions have been processing in the out of order processing system of Frederick as some type of indication is necessary to point out what entries have a certain attribute.

9. As per claim 4 and 13, neither Frederick nor Roy explicitly teach the claimed limitations. However, Frederick and Roy teach superscalar processing systems. It would have been obvious to one of ordinary skill in the art at the time the invention was made to group a plurality of entries into non-overlapping groups. One would have been motivated to do so as a great amount of older data would be processed per instruction cycle utilizing the superscalar processors taught by Frederick and Roy thus improving speed in the system.

10. As per claim 5 and 14, wherein each of the plurality of entries has a different age vector. Looking at figure 2 of Frederick each queue entry has a corresponding age vector.

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Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Knapp whose telephone number is (571)272-4149. The examiner can normally be reached on Mon - Fri 8:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on (571)272-4083. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Justin Knapp
Examiner
Art Unit 2182

jrk


KIM HUYNH
PRIMARY EXAMINER
9/6/05